

## Abstract

### **Formation of Materials such as Waveguides with a Refractive Index Step**

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A process of forming a material such as a waveguide with at least two regions of differing refractive indices comprising the steps of: (a) providing an amount of a gelable composition comprising at least one gelable component in a desired form; (b) exposing the gelable composition to conditions which partially gel the gelable composition so that an amount of ungelled material remains; (c) exposing at least one discrete region of the partially gelled product of step (b) to conditions which induce more complete gelation of the partially gelled gelable composition so that more of the ungelled material is incorporated into the gel structure in the exposed regions than in non-exposed regions; and (d) removing material not incorporated in the gel structure at least from the non-exposed region. A second component may additionally be provided, the second component being selected to impart a higher or lower refractive index to that part of the material in which it is incorporated. A step in refractive index between at least two regions of the material may be achieved.

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